UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/746,601	MCCORMICK ET AL.
	Examiner	Art Unit
	Robert C. Scheibel	2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 March 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,12,13,17 and 19-23* is/are rejected.

7)☒ Claim(s) *3-11,14-16 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

- Examiner acknowledges receipt of amendment filed 3/23/2006.

- Claims 1-23 are currently pending.

Response to Arguments

1.   Applicant's arguments, see pages 2-3, filed 3/23/2006, with respect to the rejection of

claims 1 and 2 under 35 U.S.C. 102(b) by Barberis have been fully considered and are

persuasive. The rejection of claims 1 and 2 under 35 U.S.C. 102(b) over Barberis has been

withdrawn.

2.   Applicant's arguments, see page 3, filed 3/23/2006, with respect to the rejection of claim

12 under 35 U.S.C. 103(a) by Barberis in view of AAPA have been fully considered and are

persuasive. The rejection of claim 12 under 35 U.S.C. 103(a) over Barberis in view of AAPA

has been withdrawn.

3.   Applicant's arguments, see pages 4-5, filed 3/23/2006, with respect to the rejection of

claims 17, 19, and 21 under 35 U.S.C. 103(a) over Dravida in view of AAPA have been fully

considered but they are not persuasive.

In the second paragraph of page 4, Applicant argues that the combination does not render

claims 17 and 19 obvious. Applicant first cites some claim limitations and states that they are

not rendered obvious by the rejection. However, as stated below and as indicated in the rejection

in the previous office action, Dravida does disclose all the claimed limitations except the

limitation that the input and output buffers are line cards. This is taught in the secondary

reference (Applicant's Admitted Prior Art - AAPA). Applicant argues that Examiner does not

provide evidence for the motivation statement in the 103 rejection. Examiner maintains that it is obvious to one of ordinary skill in the art that a decentralized design is both capable of supporting more traffic (N cards can support at least N times as much traffic as 1 card of the same capability) and the design is more easily upgraded to this higher capacity (by adding more cards).

In the third paragraph of page 4, Applicant argues that the limitations of claim 21 are not taught by this combination. Applicant cites a passage of Dravida (column 11, lines 38-43) as evidence that these limitations are not taught by Dravida. However, as stated in the previous rejection and below, the passage of column 5, lines 42-45 clearly discloses this broad claim language.

4.   Applicant's arguments, see pages 5-13, filed 3/23/2006, with respect to the rejection of claims 1-2, 12-13, 17, and 19-23 under 35 U.S.C. 103(a) over Kozaki in view of Park have been fully considered but they are not persuasive.

On page 5, Applicant argues Kozaki in view of Park does not render claim 1 obvious. Applicant asserts that Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 5-6, Applicant argues Kozaki in view of Park does not render claim 17 obvious. Applicant asserts that Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 6-7, Applicant argues Kozaki in view of Park does not render claim 19 obvious. Applicant asserts that Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 7-8, Applicant argues Kozaki in view of Park does not render claim 2 obvious. Applicant asserts that Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation

is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On page 8, Applicant argues Kozaki in view of Park does not render claim 12 obvious. Applicant asserts that Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 8-9, Applicant argues Kozaki in view of Park does not render claim 13 obvious. Applicant essentially argues that since claim 12 is allowable, claim 13 is also allowable for similar reasons. Examiner disagrees for reasons stated above with respect to claim 12. Further, Applicant argues that certain limitations of claim 13 were not addressed with respect to claim 12 and that a motivation to combine claims was not asserted. Examiner disagrees and refers Applicant to the previous rejection and that included below which indicate that the limitations of claim 13 are disclosed by element 39 of Figure 9 of Kozaki. The description of this element throughout Kozaki discloses the limitations that this element supports messaging between intermediate processors and the line cards; see lines 2-7 of column 13, lines 51-53 of column 13, and lines 4-10 of column 14, for example. With respect to the assertion that motivation has not been provided, Applicant is referred to the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 9-10, Applicant argues Kozaki in view of Park does not render claim 20 obvious. Applicant indicates that he cannot find mention that elements 20 and 30 of Park are link layer processors. However, the functions of these elements (peak cell rate monitoring, ATM connection acceptance, etc.) are clearly link layer functions; as such, these are clearly link layer processors. Applicant further argues that since the rejection of the parent claim 19 indicated that element 6 of figure 1 (and then pointed the Applicant to look at the specific features of element 13 of figure 3 within that block) is the central control block, the rejection does not teach that the central control block includes these other processors. However, Examiner indicated element 13 to highlight particular features of element 6 as related to claim 19; these processors are clearly included in the central control block (element 6). Applicant restates the argument that Kozaki and Park cannot be combined because Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 10-11, Applicant argues Kozaki in view of Park does not render claim 21 obvious. Applicant contends that the previous action does not provide any evidence that the routing table represents the status. However, this was indicated in the previous rejection and repeated in the rejection below; the indication of a link as affordable is a status of the link and discloses the broad claim language limitation. Further, since the cited passage is discussing

routing away from congestion, it is clear that this status is used in determining non-congested routes. Applicant restates the argument that Kozaki and Park cannot be combined because Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 11-12, Applicant argues Kozaki in view of Park does not render claim 22 obvious. Applicant contends that Kozaki teaches away from the limitation of claim 22. However, the passage in lines 26-33 of column 10 discloses the limitation of claim 22. This passage indicates that when congestion is detected, a cell is selected from another output buffer which is not congested. This has the effect of concentrating the congestion to these output (or transmit) queues where congestion is detected. Applicant restates the argument that Kozaki and Park cannot be combined because Park teaches away from the resource routing processor limitation because it uses the term "routing request". However, it is clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing request is sent to element 13 in response to detected congestion in order to route the traffic away from the congestion. Applicant further states that a motivation was not stated for combining Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10 and continuing to page 11 of the office action dated 9/20/2005.

On pages 12-13, Applicant argues Kozaki in view of Park does not render claim 23

obvious. Applicant contends that the limitations of claim 23 are not taught by Kozaki as stated

in the previous rejection. However, the claim language is extremely broad and is disclosed by

this reference. The congestion is due to a buildup of data in the buffers of the Kozaki reference;

it is clear that this buildup is caused by commands which directed the packets to be transmitted

through the switch and thus the messages that build up in the buffer correspond to programming

commands as these commands caused the data to be moved to the buffer. Applicant restates the

argument that Kozaki and Park cannot be combined because Park teaches away from the

resource routing processor limitation because it uses the term "routing request". However, it is

clear from the passage from line 60 of column 3 through line 16 of column 4 that this routing

request is sent to element 13 in response to detected congestion in order to route the traffic away

from the congestion. Applicant further states that a motivation was not stated for combining

Kozaki and Park. However, this motivation is clearly provided in the last paragraph on page 10

and continuing to page 11 of the office action dated 9/20/2005.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7.   Claims **17, 19, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over

U.S. Patent 5,253,248 to Dravida et al in view of Applicant's admitted prior art.

Regarding claims **17 and 19**, Dravida discloses a communication switch in the node of

Figure 27. The nodal processor 2730 discloses the routing control block (claim 17) and central

control block (claim 19). The nodal processor performs routing functionality through the

maintenance of the routing tables (2750 and 2760) and call processing through the update of the

maintenance of topology information (2801 in Figure 28) and determining alternate paths for

calls as the topology changes (lines 65-67 of column 11). The input buffers (2715-2717) and

output buffers (2725-2727) of Figure 27 disclose the functionality of the plurality of line cards

which are operably coupled with the routing/central control block. As is shown in Figure 27 and

the flow chart of Figure 26, then congestion is detected on a transmit queue (output buffer), a

congestion indication (via the congestion monitor) is provided to the routing control block. The

switch between the congestion monitor 2740 and the routing tables indicates how Dravida routes

calls away from the congestion based on this indication.

Dravida does not expressly disclose the limitation that the input and output buffers are

line cards. Applicant's admitted prior art (Figure 1) clearly indicates the use of a plurality of line

cards in a communications switch. Dravida and Applicant's admitted prior art are from the same

field of endeavor of congestion control in a communications node. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Dravida to implement the input and output buffers of Figure 27 on separate line cards. The motivation for doing so would have been to allow the nodes of Dravida to have more capacity (N input/output cards can support more traffic than if all the buffers were implemented on a single card) and allow the system to be upgraded (to higher capacity) more easily. Therefore, it would have been obvious to combine Applicant's admitted prior art with Dravida for the purposes of greater capacity and easier upgradeability to obtain the invention as specified in claims 17 and 19.

Regarding claim **21**, with the parent claim 19 addressed above, Dravida discloses the limitation of the subsequent routing operations including maintaining the status of a plurality of transmit queues (congestion monitor 2740) wherein the status is used to determine a non-congested compatible transmit queues for the subsequent routing operations (as indicated in lines 42-45 of column 5).

8.   Claims **1-2, 12-13, 17, and 19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,838,677 to Kozaki et al in view of U.S. Patent 5,802,040 to Park et al.

Regarding claim **1**, Kozaki discloses the limitation of a plurality of distributed processors (elements 30, 31, 36, 39, etc. of elements 3-x of Figure 9) that include ingress and egress queuing points corresponding to data units communicated within the communication switch (the buffers 35 and 38 of Figure 9), wherein when a congestion condition exists at selected queuing points within the one of the plurality of distributed processors, a congestion indication is generated (see

lines 4-10 of column 14 and lines 7-9 of column 15). Kozaki does not disclose the limitation of

the resource routing processor. Park discloses a resource routing processor (element 6 of Figure

1, see specifically element 13 of Figure 2) operably coupled to the plurality of distributed

processors (operably coupled to the line cards as shown in both figures 1 and 2), wherein the

resource routing processor controls routing functionality within the communication switch (see

lines 10-16 of column 4), wherein the resource routing processor receives congestion indications

(see lines 10-16 of column 4) and preferentially selects uncongested routes for subsequent

connections within the communication switch based on the congestion indications (see lines 10-

16 of column 4).

Regarding claim **17**, Kozaki discloses the limitation of a plurality of line cards (elements

3-1 to 3-n of Figure 9), wherein each of the line cards includes at least one transmit queue

(element 38 of Figure 9), wherein when congestion is detected on a transmit queue, a congestion

indication is provided (see lines 4-10 of column 14 and lines 7-9 of column 15). Kozaki does not

disclose the limitation of the routing control block. Park discloses a routing control block that

performs call processing operations within the switch (element 6 of Figure 1, see specifically

element 13 of Figure 2). This routing control is operably coupled to the line cards as shown in

both figures 1 and 2. The limitation that the routing control block routes calls away from

congestion is disclosed in lines 10-16 of column 4.

Regarding claim **19**, Kozaki discloses the limitation of detecting congestion in a transmit

queue corresponding to a line card and the limitation of providing an indication of the congestion

to a central control block in lines 4-10 of column 14 and lines 7-9 of column 15. Kozaki does

not disclose the limitation that the central control block performs call processing and routing for

a plurality of line cards included in the communication switch, wherein the central control block

performs subsequent routing operations in a manner that avoids the congestion corresponding to

the line card. Park discloses the limitation that the central control block (element 6 of Figure 1,

see specifically element 13 of Figure 2) performs call processing and routing for a plurality of

line cards included in the communication switch, wherein the central control block performs

subsequent routing operations in a manner that avoids the congestion corresponding to the line

card (see lines 10-16 of column 4).

Kozaki and Park are analogous art because they are from the same field of endeavor of

congestion control in communication systems. At the time of the invention it would have been

obvious to a person of ordinary skill in the art to modify Kozaki to use a centrally located

processor to control routing in the switch (as taught by Park), based on the congestion

information already transmitted to a central location in Park. The motivation for doing so would

have been to route the traffic that had been scheduled for a congested link to another link to

recover from the congestion state as suggested by Park in lines 3-5 of column 4. Therefore, it

would have been obvious to combine Park with Kozaki for the benefit of recovering from

congestion to obtain the invention as specified in claims 1, 17, and 19.

Regarding claim 2, the combination of Kozaki and Park used in the rejection of parent

claim 1 also discloses the limitation that the resource routing processor performs resource

allocation amongst connections supported by the switch (see lines 10-16 of column 4 of Park).

Regarding claim 12, the combination of Kozaki and Park used in the rejection of parent

claim 1 also discloses the limitation of a plurality of line cards (see elements 3-1 to 3-n of Figure

9 of Kozaki) operably coupled to the multiprocessor control block (as in the combination above),

wherein the plurality of line cards include ingress and egress queuing points for line card data

units (elements 35 and 38 of Figure 9 of Kozaki), wherein when a congestion condition exists at

a queuing point within a line card, a line card congestion indication is generated (see lines 4-10

of column 14 and lines 7-9 of column 15 of Kozaki) and provided to the resource routing

processor such that the resource routing processor selects routes at least partially based on line

card congestion indications received (see lines 10-16 of column 4 of Park).

Regarding claim **13**, the combination of Kozaki and Park used in the rejection of parent

claim 12 also discloses the limitation of a message processor operably coupled to the

multiprocessor control block and the plurality of line cards, wherein the message processor

supports messaging between the plurality of intermediate processors and the plurality of line

cards in element 39 of Figure 9 of Kozaki which supports the communication of the congestion

information to the central control block.

Regarding claim **20**, the combination of Kozaki and Park used in the rejection of parent

claim 19 discloses the limitation that the central control block includes a resource routing

processor (element 13 of Figure 2 of Park), a plurality of intermediate processors (elements 12,

21-23, and 31-33 of Figure 2 of Park), and a link layer processor (element 20 and 30 of Figure 2

of Park), wherein the resource routing processor performs the subsequent routing operations (see

lines see lines 10-16 of column 4 of Park).

Regarding claim **21**, the combination of Kozaki and Park used in the rejection of parent

claim 19 discloses the limitation that performing subsequent routing operations includes

maintaining status of a plurality of transmit queues corresponding to a plurality of line cards in

the switch, wherein the status is used to determine a non-congested compatible transmit queues

for the subsequent routing operations in lines 10-16 of column 4. The routing table represents

the status and the link being affordable suggests that it doesn't contain a congestion status.

Regarding claim **22**, Kozaki discloses the limitation of prioritizing data flow in the switch

such that congestion is concentrated at the plurality of transmit queues in lines 26-33 of column

10.

Regarding claim **23**, Kozaki discloses the limitation that the congestion in the transmit

queue is a result of a buildup of messages corresponding to programming commands that are

directed towards the line card. The congestion is due to a buildup of data in the buffer 38 of

Figure 9 of Kozaki which are the result of programming commands that caused the packets to be

transmitted through the switch to this buffer.

Allowable Subject Matter

9.   Claims **3-11, 14-16, and 18** are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169.

The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCS 5-15-06

Robert C. Scheibel
Examiner
Art Unit 2616

SEEMA S. RAO 5/15/06
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600